

# Stanford

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## Bruce McCandliss

Pigott Family Graduate School of Education Professor

 Curriculum Vitae available Online

### CONTACT INFORMATION

- **Administrative Assistant**

Leslie Dinan - Administrative Assitant

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### Bio

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#### ACADEMIC APPOINTMENTS

- Professor, Graduate School of Education
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Wu Tsai Neurosciences Institute

#### LINKS

- My Lab Site: <https://edneuroinitiative.stanford.edu/>

### Research & Scholarship

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#### RESEARCH INTERESTS

- Brain and Learning Sciences
- Diversity and Identity
- Psychology
- Research Methods
- Technology and Education

### Teaching

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#### COURSES

##### 2023-24

- Advanced Methods in Education and Neuroscience: Electrophysiology: EDUC 499 (Aut)
- Educational Neuroscience: EDUC 266 (Win)

##### 2022-23

- Cognitive Development in Childhood and Adolescence: EDUC 368 (Spr)
- Topics in Cognition and Learning: Technology and Multitasking: EDUC 218 (Win)

##### 2021-22

- Educational Neuroscience: EDUC 266 (Spr)
- Literacy Research from Lab to School: EDUC 444A (Win)
- Topics in Cognition and Learning: Technology and Multitasking: EDUC 218 (Spr)

#### 2020-21

- Cognitive Development in Childhood and Adolescence: EDUC 368 (Win)
- Educational Neuroscience: EDUC 266 (Spr)
- Literacy Development and Instruction: EDUC 258 (Aut)

### STANFORD ADVISEES

#### Doctoral Dissertation Reader (AC)

Philip Hernandez

#### Postdoctoral Faculty Sponsor

Adi Korisky

#### Doctoral Dissertation Advisor (AC)

Lindsey Hasak, Ethan Roy

#### Doctoral (Program)

Madison Bunderson, Lindsey Hasak, Jamie Mitchell, Trang Nguyen, Neha Rajagopalan, Ethan Roy

## Publications

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### PUBLICATIONS

- **White matter and literacy: A dynamic system in flux.** *Developmental cognitive neuroscience*  
Roy, E., Richie-Halford, A., Kruper, J., Narayan, M., Bloom, D., Nedelec, P., Rauschecker, A. M., Sugrue, L. P., Brown, T. T., Jernigan, T. L., McCandliss, B. D., Rokem, A., Yeatman, et al  
2024; 65: 101341
- **Better together: novel methods for measuring and modeling development of executive function diversity while accounting for unity.** *Frontiers in human neuroscience*  
Younger, J. W., O'Laughlin, K. D., Anguera, J. A., Bunge, S. A., Ferrer, E. E., Hoeft, F., McCandliss, B. D., Mishra, J., Rosenberg-Lee, M., Gazzaley, A., Uncapher, M. R.  
2023; 17: 1195013
- **Progress in elementary school reading linked to growth of cortical responses to familiar letter combinations within visual word forms.** *Developmental science*  
Wang, F., Kaneshiro, B., Toomarian, E. Y., Gosavi, R. S., Hasak, L. R., Moron, S., Nguyen, Q. T., Norcia, A. M., McCandliss, B. D.  
2023; e13435
- **Interventions to improve equational reasoning: replication and extension of the Cuisenaire-Gattegno curriculum effect.** *Frontiers in psychology*  
Benson, I., Marriott, N., McCandliss, B. D.  
2023; 14: 1116555
- **Editorial: Neural bases of reading acquisition and reading disability.** *Frontiers in neuroscience*  
Tan, L. H., Perfetti, C. A., Ziegler, J. C., McCandliss, B.  
2023; 17: 1147156
- **Groupitizing reflects conceptual developments in math cognition and inequities in math achievement from childhood through adolescence.** *Child development*  
Guillaume, M., Roy, E., Van Rinsveld, A., Starkey, G. S., Uncapher, M. R., McCandliss, B. D.  
2022

- **Lexical and sublexical cortical tuning for print revealed by Steady-State Visual Evoked Potentials (SSVEPs) in early readers.** *Developmental science*  
Wang, F., Nguyen, Q. T., Kaneshiro, B., Hasak, L., Wang, A. M., Toomarian, E. Y., Norcia, A. M., McCandliss, B. D.  
2022; e13352
- **Location matters: Regional variation in association of community burden of COVID-19 with caregiver and youth worry.** *Health & place*  
Marshall, A. T., Hackman, D. A., Kan, E., Abad, S., Baker, F. C., Baskin-Sommers, A., Dowling, G. J., Gonzalez, M. R., Guillaume, M., Kiss, O., McCabe, C. J., McCandliss, B. D., Pelham, et al  
2022; 77: 102885
- **Equational reasoning: A systematic review of the Cuisenaire-Gattegno approach** *FRONTIERS IN EDUCATION*  
Benson, I., Marriott, N., McCandliss, B. D.  
2022; 7
- **Speed-Accuracy Trade-Off? Not So Fast: Marginal Changes in Speed Have Inconsistent Relationships With Accuracy in Real-World Settings** *JOURNAL OF EDUCATIONAL AND BEHAVIORAL STATISTICS*  
Domingue, B. W., Kanopka, K., Stenhaus, B., Sulik, M. J., Beverly, T., Brinkhuis, M., Circi, R., Faul, J., Liao, D., McCandliss, B., Obradovic, J., Piech, C., Porter, et al  
2022
- **Negative Impacts of Pandemic Induced At-Home Remote Learning Can Be Mitigated by Parental Involvement** *FRONTIERS IN EDUCATION*  
Guillaume, M., Toomarian, E. Y., Van Rinsveld, A., Baskin-Sommers, A., Dick, A., Dowling, G. J., Gonzalez, M., Hasak, L., Lisdahl, K. M., Marshall, A. T., Nguyen, Q. H., Pelham, W. E., Pillai, et al  
2022; 7
- **How Movie Events Engage Childrens' Brains to Combine Visual Attention with Domain-Specific Processing Involving Number and Theory of Mind in a Cinematic Arena** *PROJECTIONS-THE JOURNAL FOR MOVIES AND MIND*  
Levin, D. T., Mattarella-Micke, A., Lee, M. J., Baker, L. J., Bezdek, M. A., McCandliss, B. D.  
2022; 16 (1): 67-83
- **Age-related changes and longitudinal stability of individual differences in ABCD Neurocognition measures.** *Developmental cognitive neuroscience*  
Anokhin, A. P., Luciana, M., Banich, M., Barch, D., Bjork, J. M., Gonzalez, M. R., Gonzalez, R., Haist, F., Jacobus, J., Lisdahl, K., McGlade, E., McCandliss, B., Nagel, et al  
2022; 54: 101078
- **The Pandemic's Toll on Young Adolescents: Prevention and Intervention Targets to Preserve Their Mental Health.** *The Journal of adolescent health : official publication of the Society for Adolescent Medicine*  
Kiss, O., Alzueta, E., Yuksel, D., Pohl, K. M., de Zambotti, M., Muller-Oehring, E. M., Prouty, D., Durley, I., Pelham, W. E., McCabe, C. J., Gonzalez, M. R., Brown, S. A., Wade, et al  
1800
- **Distinct neural sources underlying visual word form processing as revealed by steady state visual evoked potentials (SSVEP).** *Scientific reports*  
Wang, F., Kaneshiro, B., Strauber, C. B., Hasak, L., Nguyen, Q. T., Yakovleva, A., Vildavski, V. Y., Norcia, A. M., McCandliss, B. D.  
2021; 11 (1): 18229
- **Early Adolescent Substance Use Before and During the COVID-19 Pandemic: A Longitudinal Survey in the ABCD Study Cohort.** *The Journal of adolescent health : official publication of the Society for Adolescent Medicine*  
Pelham, W. E., Tapert, S. F., Gonzalez, M. R., McCabe, C. J., Lisdahl, K. M., Alzueta, E., Baker, F. C., Breslin, F. J., Dick, A. S., Dowling, G. J., Guillaume, M., Hoffman, E. A., Marshall, et al  
2021; 69 (3): 390-397
- **A probabilistic approach for quantifying children's subitizing span.** *Journal of experimental child psychology*  
Starkey, G. S., McCandliss, B. D.  
2021; 207: 105118
- **Replicability of neural responses to speech accent is driven by study design and analytical parameters.** *Scientific reports*  
Strauber, C. B., Ali, L. R., Fujioka, T., Thille, C., McCandliss, B. D.  
2021; 11 (1): 4777
- **Attentional Processes in Children With Attentional Problems or Reading Difficulties as Revealed Using Brain Event-Related Potentials and Their Source Localization** *FRONTIERS IN HUMAN NEUROSCIENCE*  
Santhana Gopalan, P., Loberg, O., Lohvansuu, K., McCandliss, B., Hamalainen, J., Leppanen, P.

2020; 14

- **Attentional Processes in Children With Attentional Problems or Reading Difficulties as Revealed Using Brain Event-Related Potentials and Their Source Localization.** *Frontiers in human neuroscience*  
Santhana Gopalan, P. R., Loberg, O., Lohvansuu, K., McCandliss, B., Hämäläinen, J., Leppänen, P.  
2020; 14: 160
- **Cognitive Predictors of Difficulties in Math and Reading in Pre-Kindergarten Children at High Risk for Learning Disabilities** *JOURNAL OF EDUCATIONAL PSYCHOLOGY*  
Barnes, M. A., Clemens, N. H., Fall, A., Roberts, G., Klein, A., Starkey, P., Mccandliss, B., Zucker, T., Flynn, K.  
2020; 112 (4): 685–700
- **Distinct Representations of Magnitude and Spatial Position within Parietal Cortex during Number-Space Mapping** *JOURNAL OF COGNITIVE NEUROSCIENCE*  
Kanayet, F. J., Mattarella-Micke, A., Kohler, P. J., Norcia, A. M., McCandliss, B. D., McClelland, J. L.  
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- **Event-related potential differences in children supplemented with long-chain polyunsaturated fatty acids during infancy.** *Developmental science*  
Liao, K., McCandliss, B. D., Carlson, S. E., Colombo, J., Shaddy, D. J., Kerling, E. H., Lepping, R. J., Sittiprapaporn, W., Cheatham, C. L., Gustafson, K. M.  
2016
- **Effects of Tutorial Interventions in Mathematics and Attention for Low-Performing Preschool Children** *JOURNAL OF RESEARCH ON EDUCATIONAL EFFECTIVENESS*  
Barnes, M. A., Klein, A., Swank, P., Starkey, P., McCandliss, B., Flynn, K., Zucker, T., Huang, C., Fall, A., Roberts, G.  
2016; 9 (4): 577-606
- **Does Music Training Enhance Literacy Skills? A Meta-Analysis** *FRONTIERS IN PSYCHOLOGY*  
Gordon, R. L., Fehd, H. M., McCandliss, B. D.  
2015; 6
- **Hemispheric specialization for visual words is shaped by attention to sublexical units during initial learning.** *Brain and language*  
Yoncheva, Y. N., Wise, J., McCandliss, B.  
2015; 145-146: 23-33
- **Hemispheric specialization for visual words is shaped by attention to sublexical units during initial learning** *BRAIN AND LANGUAGE*  
Yoncheva, Y. N., Wise, J., McCandliss, B.  
2015; 145: 23-33
- **Neuroimaging correlates of handwriting quality as children learn to read and write** *FRONTIERS IN HUMAN NEUROSCIENCE*  
Gimenez, P., Bugescu, N., Black, J. M., Hancock, R., Pugh, K., Nagamine, M., Kutner, E., Mazaika, P., Hendren, R., McCandliss, B. D., Hoeft, F.  
2014; 8
- **The emergence of “groupitizing” in children’s numerical cognition** *Journal of experimental child psychology*  
Starkey, G. S., McCandliss, B. D.  
2014; 126: 120-137
- **Mise en place: Setting the stage for thought and action** *Trends in Cognitive Sciences*  
Weisberg, D. S., Hirsh-Pasek, K., Golinkoff, R. M., McCandliss, B. D.  
2014; 18 (6): 276-278
- **The cognitive mechanisms of the SNARC effect: an individual differences approach** *PloS one*  
Viarouge, A., Hubbard, E. M., McCandliss, B. D.  
2014; 9 (4): e95756
- **Selective attention to phonology dynamically modulates initial encoding of auditory words within the left hemisphere** *NeuroImage*  
Yoncheva, Y., Maurer, U., Zevin, J. D., McCandliss, B. D.  
2014; 97: 262-270
- **Orthographic influences on division of labor in learning to read Chinese and English: Insights from computational modeling** *Bilingualism: Language and Cognition*  
Yang, J., Shu, H., McCandliss, B. D., Zevin, J. D.

2013; 16 (2): 354-366

- **Effects of rhyme and spelling patterns on auditory word ERPs depend on selective attention to phonology** *Brain and language*  
Yoncheva, Y. N., Maurer, U., Zevin, J. D., McCandliss, B. D.  
2013; 124 (3): 238-243
- **Neural systems predicting long-term outcome in dyslexia** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Hoefl, F., McCandliss, B. D., Black, J. M., Gantman, A., Zakerani, N., Hulme, C., Lyytinen, H., Whitfield-Gabrieli, S., Glover, G. H., Reiss, A. L., Gabrieli, J. D.  
2011; 108 (1): 361-366
- **Scientific and Pragmatic Challenges for Bridging Education and Neuroscience** *EDUCATIONAL RESEARCHER*  
Varma, S., McCandliss, B. D., Schwartz, D. L.  
2008; 37 (3): 140-152
- **Extent of microstructural white matter injury in postconcussive syndrome correlates with impaired cognitive reaction time: a 3T diffusion tensor imaging study of mild traumatic brain injury** *American Journal of Neuroradiology*  
Niogi, S., Mukherjee, P., Ghajar, J., Johnson, C., Kolster, R., Sarkar, R., Lee, H., Meeker, M., Zimmerman, R., Manley, G.  
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